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FILING DATE: *March 17, 2004*

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INVENTOR(S)

Given Name (first and middle (if any))	Family Name or Surname	Residence (City and either State or Foreign Country)
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☐ Additional inventors are being named on the _____ separately numbered sheets attached hereto

TITLE OF THE INVENTION (280 characters max)

Placard Retaining Device and Method of Use

Direct all correspondence to:

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☒ Specification Number of Pages ☐ CD(s), Number

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Respectfully submitted,

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Tim Headley

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P19SMALL/REV05

UNITED STATES PROVISIONAL PATENT APPLICATION
for
Placard Retaining Device and Method of Use

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Description

[0001] The present invention relates to a placard retaining device for use with placard holders and the like, which provide display positions for informational and decorative placards. A number of different types of placard holders are available and the current invention may be adapted for use with many of them.

BACKGROUND OF THE INVENTION

[0002] Placards are used in many situations to provide information to a reader about a particular material or device with which the placard is spatially related. The placard is usually positioned in such a manner that it is nearby or affixed to the package or container holding the thing described on the placard. Often, the placards are placed within a holding device that is secured nearby, or on, the package or container. The advantage of the holding device is that it allows a placard to be changed when the contents of the associated package or container are changed. This is particularly useful where the placard holder is affixed to a refillable container such as a fifty-five gallon drum, railcar, shipping container or the like.

[0003] In particular, placards are often used as a source of information identifying the type of hazard a hazardous material in shipment may pose. This type of placard forms a key component of an international system of hazard communication. Prominent display of the placard on shipping containers functions to immediately warn responders, handlers and bystanders that hazards are present and that caution should be taken when interaction with the container's contents is undertaken. Therefore, it is critical that when such a placard is placed on a container that it remain fixedly attached to the container throughout the time that the hazardous material is present. However, this has proven to be a problem using the placard holders currently available.

[0004] Due to the standardized size and format of the placards, the holders with which they are used must be designed so they do not obscure the information being displayed on the placard. This limitation restricts the available upper surface area of the placard that may be contacted by the placard holder for the purpose of restraining the placard within the holder. The placard holder is often comprised of a back frame member attached to the transport container and a front frame member having a flat surface portion enclosing an open window area. Such a placard holder is described in U.S. Patent No. 4,229,891 to Keller. The front and back frame members are usually peripherally bound by a spacing member that creates a placard pocket between the front and back frame members. At least some part of the periphery is left unbounded so as to allow access to the placard pocket. To facilitate ease of insertion and removal of the placards, the tolerances to which the placard holders are manufactured are large, usually resulting in excess space between the surfaces and edges of the placard and the placard holder.

[0005] However, when such placard holders are used on surfaces subject to atmospheric disturbances, whether natural or artificial, several problems have been identified. The atmospheric disturbance may be weather related, but is more often the result of the method by which the container on which the placard holder is placed is transported. For example, a tractor trailer vehicle pulling a tanker containing hydrochloric acid ("HCl") would be required to have hazardous material placards on both ends and both sides of the tanker identifying the contained material as HCl. However, when moving down the road at speeds often exceeding sixty miles per hour (60 mph), the placards are subjected to winds at or near the speed at which the vehicle is traveling. This often results in air flow beneath the placard, causing it to shift within the placard holder. Even worse, the placard can lift away from the vehicle, become bent or broken, or otherwise damaged, thus limiting its ability to effectively convey the information contained on it.

[0006] The present invention solves this problem by restricting the movement of the placard within the placard holder. When the movement of the placard is restricted, the placard maintains substantially its original position, no matter the atmospheric conditions

to which it is subject. Thanks to the flexibility and portability of the present invention, it can be used only when needed, and can adapt to varying geometries of placard holders.

SUMMARY OF THE INVENTION

[0007] According to the invention, it provides a retaining device to restrict movement of a placard within a placard holder. The retaining device comprises a ring, that may be of circular or polygonal shape, that operatively engages with the placard holder without obscuring substantially any of the placard's information. The retaining device is, further, substantially uni-planar.

[0008] Preferably, the retaining device is flexible so as to allow insertion into the placard pocket of the placard holder without substantial distortion of the retaining device. A stiffening structure may be attached to the retaining device to provide the necessary resistance to distortion, if needed. However, the retaining device may be pre-loaded with a small amount of curvature in a direction perpendicular to the plane of the placard holder. This pre-loaded curvature allows the retaining device to operatively engage with at least one frame member of the placard holder and engage and urge the placard securely against a second frame member of the placard holder or against a containment vessel on which the placard holder has been installed.

[0009] The retaining device may be of metallic or non-metallic material, such as steel or plastic. Preferably, the retaining device is of a weather-resistant or oxidation-resistant material including, but not limited to, plastic, ultra-violet resistant plastic, steel, stainless steel, titanium or aluminum.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a front view of the retaining device of the present invention.

[0011] FIG. 2 is a front view of an alternate embodiment of the retaining device of the present invention.

[0012] FIG. 3 is a side view of the retaining device of the present invention.

[0013] FIG. 4 is a front view of the retaining device of the present invention depicting the method of insertion of the retaining device in a placard holder.

[0014] FIG. 5 is a front view of the retaining device of the present invention inserted into a placard holder to restrict movement of the placard therein.

[0015] FIG. 6 is a side view of the retaining device of the present invention shown inserted into a placard holder.

DETAILED DESCRIPTION OF THE DRAWINGS

[0016] Various aspects of the present invention will evolve from the detailed description of the preferred embodiments which should be referenced to the above described detailed drawings.

[0017] With reference to FIG. 1 and FIG. 2, alternative embodiments of the retaining device of the present invention are shown. FIG. 1 depicts retaining device 1 forming a four sided polygon to which at a proximal end is attached stiffening structure 3. Stiffening structure 3 serves to provide reinforcement to annular member 5 to prevent excessive deformation when retaining device 1 is inserted into a placard holder (not shown). Additionally, stiffening structure 3 serves as a convenient position for a user to grasp when engaging retaining device 1 with a placard holder. FIG. 2 depicts retaining device 7, also comprising annular member 5 and stiffening structure 3. However, retaining device 7 is preferably shaped so as to engage a placard holder (shown in FIG. 4) without substantially obscuring the printed material on a placard inserted into the placard holder.

[0018] FIG. 3 depicts a side view of retaining device 7. Retaining device 7 has a sufficient out-of-planar bend so as to allow it to act as a spring when placed between two planar surfaces to which it may be engaged.

[0019] FIG. 4 and FIG. 5 depict the insertion of retaining device 7 into placard holder 9. Retaining device 7 is inserted through the same aperture of placard holder 9 that is used to insert placard 9. As can be seen in FIG. 5, retaining device 7 is placed between placard 11 and a first surface 13 of placard holder 11. The aperture formed by annular member 5 allows a substantially unobstructed view of the information displayed on placard 11.

[0020] FIG. 6 is a side view of the engaged retaining device 7 of FIG. 5. As can be clearly seen, retaining device 7 is out-of-plane a sufficient amount to act as a spring. Retaining device 7 engages both the first surface 13 of placard holder 11 and placard 11, and urges placard 11 against a second surface 15 of placard holder 11, thereby holding placard 11 in place. Alternatively, retaining device 7 could be placed between placard 11 and second surface 15 of placard holder 11, so as to engage and urge placard 11 against the first surface 13 of placard holder 11.

Claims

I claim:

- 1) A system for restricting movement of a placard within a placard holder comprising:
 - (a) a placard holder; and
 - (b) a substantially planar member forming an opening; the substantially planar member being out-of-plane a sufficient amount so as to act as a spring to engage a first surface of the placard holder and to engage and urge the placard against a second surface of the placard holder.
- 2) A method for restricting movement of a placard within a placard holder comprising:
 - (a) placing a substantially planar member forming an opening that is out-of-plane a sufficient amount so as to act as a spring between the placard and a first surface of the placard holder;
 - (b) engaging the substantially planar member with the first surface of the placard holder;
 - (c) engaging the substantially planar member with the placard; and
 - (d) urging the placard against a second surface of the placard holder.
- 3) A retaining device for retaining a placard within a placard holder, comprising,
 - (a) A polygonal member with an opening having a short axis and a long axis; and
 - (b) A two-sided grasping device attached to an outer corner of the polygon, wherein the corner lies on the long axis of the polygon.
- 4) The retaining device of claim 3 wherein the short axis is less than twelve (12) inches.
- 5) The retaining device of claim 3 wherein an annular stiffening device is attached to the same corner as the two-sided grasping device and is further attached to each side of the two-sided grasping device.

Abstract

A retaining device for improving the functionality of placard holders when the placard holder is subject to transient atmospheric conditions. The retaining device includes a ring, which may be circular or polygonal, used in conjunction with a placard holder to more fully secure a placard with the placard holder when transient atmospheric conditions are encountered. The retaining device may be adapted to use with many designs of placard holders, including, but not limited to, U.S. Department of Transportation approved hazardous material information placard holders.

1/3

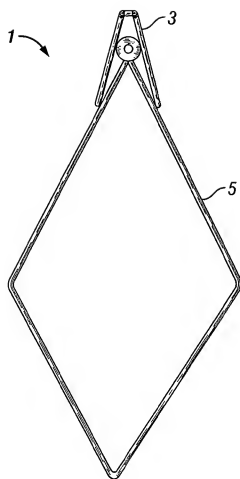


FIG. 1

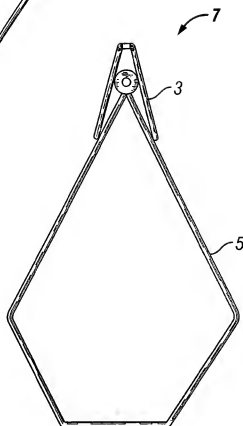


FIG. 2

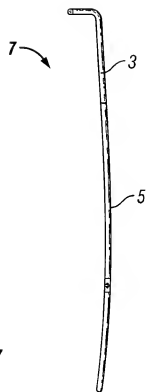


FIG. 3

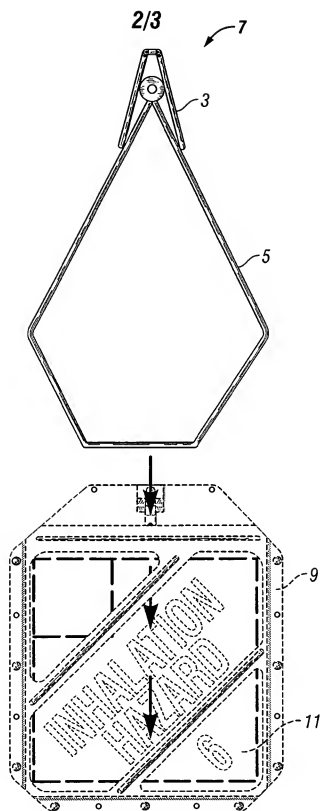


FIG. 4

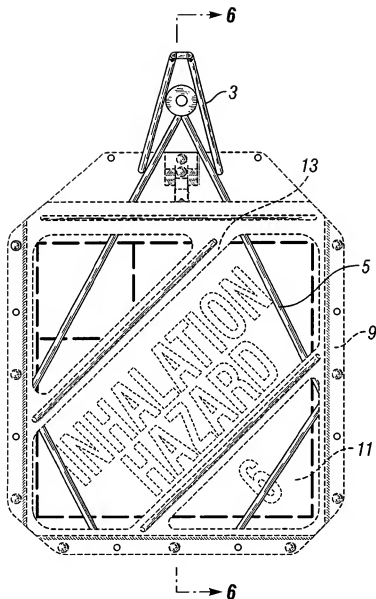


FIG. 5

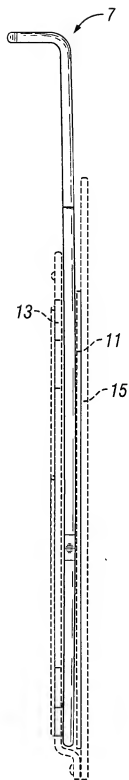


FIG. 6